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PULSE-LINK, INC.
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EXAMINER	
WILLIAMS, LAWRENCE B	

ART UNIT	PAPER NUMBER
2611	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/810,948	LAKKIS, ISMAIL	
	Examiner	**Art Unit**	
	Lawrence B. Williams	2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *2/27/2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *5-12,17-25 and 30-36* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *5-12,17-25 and 30-36* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments, see Arguments/Remarks, filed 02/07/2008, with respect to the rejection(s) of claim(s) 1-36 under U.S.C. 102/103 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Wilson et al. (US Patent 6,151,481).

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 5, 11-12, 17, 23-25, 30, 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mazur et al. (US Patent 6,650,910 B1) in view of Wilson et al. (US Patent 6,151,481).

(1) With regard to claim 5, Mazur et al. discloses in Fig(s). 2, 3, a receiver, comprising: a first antenna (AA1) configured to receive wireless signals, a second antenna (AA2) configured to receive wireless signals, a delay block (D) coupled with the second antenna, the delay configured to delay the wireless signals received by the second antenna (AA2, col. 6, lines 36-39); and a combiner (CMB) configured to combine the wireless signals received by the first antenna and the delayed wireless signals received by the second antenna; and a

baseband circuit (RX, EqSE, col. 6, lines 5-8, lines 49-56) configured to process the combined wireless signals.

Mazur et al. does not disclose wherein the baseband circuit is configured to dynamically update the delay applied by the delay block and wherein the baseband circuit is configured to determine a delay spread for the wireless signals received by the first antenna and to dynamically update the delay applied by the delay block to the wireless signals received by the second antenna based on the delay spread determined for the wireless signals received by the first antenna.

However, Wilson et al. discloses in Fig. 6, wherein a baseband (Wilson et al. discloses that a baseband delay unit may be implemented, col. 3, lines 41-44) circuit (Delay Control, 44a along with correlators, 43) is configured to dynamically update a delay applied by a delay block (Switched fiber variable delay, 20) and wherein the baseband circuit is configured to determine a delay spread for the wireless signals received by a first antenna (from antenna) and to dynamically update the delay applied by the delay block (switched fiber variable delay) to the wireless signals received by the second antenna (from antenna(s)) based on the delay spread determined for the wireless signals received by the first antenna (col. 6, lines 34-41; Though not explictly disclosed, the correlators would obviously each determine a delay spread as known in the art from the reference signal supplied “from antenna” to yield Wilson et al.’s “early, late” correlation signals. The early, late corresponding to a delay spread between signals. The difference between the two signals would yield a delay spread used to establish a delay control signal used by the delay control, 44a, to control the fiber variable delay, 20 of the antenna(s).

One skilled in the art would have been motivated to apply the teachings of Wilson et al. as a method of readily correcting the timing of the antenna(s) signals (col. 2, lines 52-62).

(2) With regard to claim 11, Mazur et al. also discloses wherein a baseband circuit is configured to use maximum ratio combining to process the combined wireless signals (col. 6, lines 49-56).

(3) With regard to claim 12, Mazur et al. also discloses in Fig(s). 2, 3, the receiver of claim 1, further comprising a plurality of antennas (AA2) configured to receive wireless signals, and a plurality of delay blocks (D, DLM) interfaced with the plurality of antennas, the plurality of delay blocks configured to delay the wireless signals received by the plurality of antennas (col. 6, lines 36-39).

(4) With regard to claim 17, Mazur et al. also discloses in Fig(s). 1-3, a wireless communication system, comprising: a transmitter (col. 5, lines 41-42, Mazur et al. discloses the antenna diversity arrangement improves the uplink quality. Thus a transmitter in the base station is inherent) configured to transmit wireless signals; and a receiver comprising: a first antenna (Fig. 2, AA1) configured to receive the wireless signals transmitted by the transmitter, a second antenna (Fig. 2, AA2) configured to receive the wireless signals transmitted by the transmitter, a delay block (D) coupled with the second antenna, the delay configured to delay the wireless signals received by the second antenna (AA2, col. 6, lines 36-39), and a combiner (CMB) configured to combine the wireless signals received by the first antenna and the delayed wireless signals received by the second antenna, a baseband circuit (RX, EqSE, col. 6, lines 5-8, lines 49-56) configured to process the combined wireless signals.

Mazur et al. does not disclose wherein the baseband circuit is configured to

dynamically update the delay applied by the delay block and wherein the baseband circuit is configured to determine a delay spread for the wireless signals received by the first antenna and to dynamically update the delay applied by the delay block to the wireless signals received by the second antenna based on the delay spread determined for the wireless signals received by the first antenna.

However, Wilson et al. discloses in Fig. 6, wherein a baseband (Wilson et al. discloses that a baseband delay unit may be implemented, col. 3, lines 41-44) circuit (Delay Control, 44a along with correlators, 43) is configured to dynamically update a delay applied by a delay block (Switched fiber variable delay, 20) and wherein the baseband circuit is configured to determine a delay spread for the wireless signals received by a first antenna (from antenna) and to dynamically update the delay applied by the delay block (switched fiber variable delay) to the wireless signals received by the second antenna (from antenna(s)) based on the delay spread determined for the wireless signals received by the first antenna (col. 6, lines 34-41; Though not explictly disclosed, the correlators would obviously each determine a delay spread as known in the art from the reference signal supplied “from antenna” to yield Wilson et al.’s “early, late” correlation signals. The early, late corresponding to a delay spread between signals. The difference between the two signals would yield a delay spread used to establish a delay control signal used by the delay control, 44a, to control the fiber variable delay, 20 of the antenna(s).

One skilled in the art would have been motivated to apply the teachings of Wilson et al. as a method of readily correcting the timing of the antenna(s) signals (col. 2, lines 52-62).

(5) With regard to claim 23, Mazur et al. also discloses the wireless communication

system of claim 17, wherein the baseband circuit is configured to use maximum ratio combining to process the combined wireless signals (col. 6, lines 49-56).

(6) With regard to claim 24, Mazur et al. also discloses in Fig(s). 2, 3, the wireless communication system of claim 17, further comprising a plurality of antennas (AA2) configured to receive wireless signals, and a plurality of delay blocks (D, DLM) interfaced with the plurality of antennas, the plurality of delay blocks configured to delay the wireless signals received by the plurality of antennas (col. 6, lines 36-39).

(7) With regard to claim 25, Mazur et al. also discloses wherein the transmitter comprises a plurality of antenna (col. 5, lines 41-43).

(8) With regard to claim 30, Mazur et al. also discloses in Fig(s). 2-4, a method for receiving wireless signals, comprising receiving a first wireless signal with a first antenna (AA1), receiving a second wireless signal with a second antenna (AA2), delaying (D) the wireless signal received by the second antenna (AA2) a certain amount (col. 6, lines 36-39); combining (CMB) the wireless signal received by the first antenna and the delayed wireless signal received by the second antenna; and processing the combined signals (RX, EqSE, col. 6, lines 5-8, lines 49-56).

Mazur et al. does not disclose dynamically update the certain amount of delay and dynamically updating the certain amount of delay applied to the wireless signals received by the second antenna based on the delay spread determined for the wireless signals received by the first antenna.

However, Wilson et al. discloses in Fig. 6, wherein a baseband (Wilson et al. discloses that a baseband delay unit may be implemented, col. 3, lines 41-44) circuit (Delay Control, 44a

along with correlators, 43) is configured to dynamically update a certain amount of delay applied by a delay block (Switched fiber variable delay, 20) and determine a delay spread for the wireless signals received by a first antenna (from antenna) and dynamically updating the certain amount of delay (switched fiber variable delay) to the wireless signals received by the second antenna (from antenna(s)) based on the delay spread determined for the wireless signals received by the first antenna (col. 6, lines 34-41; Though not explictly disclosed, the correlators would obviously each determine a delay spread as known in the art from the reference signal supplied "from antenna" to yield Wilson et al.'s "early, late" correlation signals. The early, late corresponding to a delay spread between signals. The difference between the two signals would yield a delay spread used to establish a delay control signal used by the delay control, 44a, to control the fiber variable delay, 20 of the antenna(s).

One skilled in the art would have been motivated to apply the teachings of Wilson et al. as a method of readily correcting the timing of the antenna(s) signals (col. 2, lines 52-62).

(12) With regard to claim 36, Mazur et al. also discloses the method of claim 30, wherein processing the combined wireless signals comprises applying maximum ratio combining to the combined wireless signals (col. 6, lines 49-56).

4. Claims 6-7, 18-19, 31-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mazur et al. (US Patent 6,650,910 B1) in view of Wilson et al. (US Patent 6,151,481) as applied to claims 5, 17 and 30, respectively.

Regarding claims 6-7, 18-19, 31-32, as noted above the combination of Mazur et al. and Wilson et al. discloses substantially all limitations of claims of 7, 19, and 30. They do not

explictly disclose wherein the delay spread determined for the wireless signals received by the first antenna is the average or maximum delay spread. Though Wilson et al. does not disclose expressly using an average or maximum delay spread, at the time of invention, it would have been obvious to one of ordinary skill in the art to use either a difference in delay spread, an average or maximum delay spread. Applicant has not disclosed that using either an average or a maximum delay spread provides an advantage, is used for a particular purpose or solves a stated problem. One of ordinary skill in the art, furthermore would have expected applicant's to perform equally well with the difference in delay spread, the average delay spread or the maximum delay spread because either resulting delay spread would be used to adjust the delay applied to the signals received by the remaining antennas to correct the timing of the antenna(s) signals.

5. Claims 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mazur et al. (US Patent 6,650,910 B1) in view Wilson et al. (US Patent 6,151,481) as applied to claim 5, above, and further in view of Schilling (US Patent 5,633,889).

(1) With regard to claim 8, claim 8 inherits all limitations of claim 5, above. As noted above, the combination of Mazur et al. and Wilson et al. disclose all limitations of claim 5. They do not explictly disclose wherein the baseband circuit is configured to continually dynamically update the delay applied by the delay block, though in the invention of Wilson et al. such a continual dynamic updating as shown in Fig. 6, would be obvious since the “early, late “ differences would be constantly changing in an wireless environment. However, Schilling discloses the wherein a baseband circuit is configured to continually dynamically update the delay applied by the delay block (col. 2, lines 28-32; col. 9, lines 36-44).

It would have been obvious to one skilled in the art at the time of invention to incorporate the teachings of Schilling of as a method of reducing the probability of error of a spread spectrum signal arriving from two or more paths (col. 1, lines 35-44).

(2) With regard to claim 9, Schilling also discloses wherein the baseband circuit is configured to periodically dynamically update the delay applied by the delay block (col. 4, line 64-col. 5, line 10, Schilling teaches a comparison signal based upon a magnitude value, either greater or less than a previous value to increase or decrease the delay. Thus the delay would be updated periodically dependent upon the magnitude value).

It would have been obvious to one skilled in the art at the time of invention to incorporate the teachings of Schilling of as a method of reducing the probability of error of a spread spectrum signal arriving from two or more paths (col. 1, lines 35-44).

(3) With regard to claim 10, Schilling also discloses wherein the baseband circuit is configured to non-periodically dynamically update the delay applied by the delay block (col. 4, line 64-col. 5, line 10, Schilling teaches a comparison signal based upon a magnitude value, either greater or less than a previous value to increase or decrease the delay). Since Schilling makes no disclosure as to adjusting the delay when the magnitude is equal to a previous value, it is inherent that no adjustment is made. This leads to a non-periodically dynamic update of the delay. Thus the delay would be updated periodically dependent upon the magnitude value.

It would have been obvious to one skilled in the art at the time of invention to incorporate the teachings of Schilling of as a method of reducing the probability of error of a spread spectrum signal arriving from two or more paths (col. 1, lines 35-44).

6. Claims 20-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mazur et al. (US Patent 6,650,910 B1) in view Wilson et al. (US Patent 6,151,481) as applied to claim 17, above, and further in view of Schilling (US Patent 5,633,889).

(1) With regard to claim 20, claim 20 inherits all limitations of claim 17, above. As noted above, the combination of Mazur et al. and Wilson et al. disclose all limitations of claim 17. They do not explictly disclose wherein the baseband circuit is configured to continually dynamically update the delay applied by the delay block, though in the invention of Wilson et al. such a continual dynamic updating as shown in Fig. 6, would be obvious since the "early, late" differences would be constantly changing in an wireless environment.

However, Schilling discloses the wherein a baseband circuit is configured to continually dynamically update the delay applied by the delay block (col. 2, lines 28-32; col. 9, lines 36-44).

It would have been obvious to one skilled in the art at the time of invention to incorporate the teachings of Schilling of as a method of reducing the probability of error of a spread spectrum signal arriving from two or more paths (col. 1, lines 35-44).

(2) With regard to claim 21, Schilling also discloses wherein the baseband circuit is configured to periodically dynamically update the delay applied by the delay block (col. 4, line 64-col. 5, line 10, Schilling teaches a comparison signal based upon a magnitude value, either greater or less than a previous value to increase or decrease the delay. Thus the delay would be updated periodically dependent upon the magnitude value).

It would have been obvious to one skilled in the art at the time of invention to incorporate the teachings of Schilling of as a method of reducing the probability of error of a spread spectrum signal arriving from two or more paths (col. 1, lines 35-44).

(3) With regard to claim 22, Schilling also discloses wherein the baseband circuit is configured to non-periodically dynamically update the delay applied by the delay block (col. 4, line 64-col. 5, line 10, Schilling teaches a comparison signal based upon a magnitude value, either greater or less than a previous value to increase or decrease the delay). Since Schilling makes no disclosure as to adjusting the delay when the magnitude is equal to a previous value, it is inherent that no adjustment is made. This leads to a non-periodically dynamic update of the delay. Thus the delay would be updated periodically dependent upon the magnitude value.

It would have been obvious to one skilled in the art at the time of invention to incorporate the teachings of Schilling of as a method of reducing the probability of error of a spread spectrum signal arriving from two or more paths (col. 1, lines 35-44).

7. Claims 33-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mazur et al. (US Patent 6,650,910 B1) in view Wilson et al. (US Patent 6,151,481) as applied to claim 30, above, and further in view of Schilling (US Patent 5,633,889).

(1) With regard to claim 33, claim 33 inherits all limitations of claim 30, above. As noted above, the combination of Mazur et al. and Wilson et al. disclose all limitations of claim 30. They do not explictly disclose the method further comprising continually dynamically update the certain amount of delay, though in the invention of Wilson et al. such a continual dynamic updating as shown in Fig. 6, would be obvious since the "early, late" differences would be constantly changing in an wireless environment.

However, Schilling discloses continually dynamically updating the certain amount of delay applied by the delay block (col. 2, lines 28-32; col. 9, lines 36-44).

It would have been obvious to one skilled in the art at the time of invention to incorporate the teachings of Schilling of as a method of reducing the probability of error of a spread spectrum signal arriving from two or more paths (col. 1, lines 35-44).

(2) With regard to claim 34, Schilling also periodically dynamically updating certain amount of delay applied by the delay block (col. 4, line 64-col. 5, line 10, Schilling teaches a comparison signal based upon a magnitude value, either greater or less than a previous value to increase or decrease the delay. Thus the delay would be updated periodically dependent upon the magnitude value).

It would have been obvious to one skilled in the art at the time of invention to incorporate the teachings of Schilling of as a method of reducing the probability of error of a spread spectrum signal arriving from two or more paths (col. 1, lines 35-44).

(3) With regard to claim 35, Schilling also discloses non-periodically dynamically updating the delay applied by the delay block (col. 4, line 64-col. 5, line 10, Schilling teaches a comparison signal based upon a magnitude value, either greater or less than a previous value to increase or decrease the delay). Since Schilling makes no disclosure as to adjusting the delay when the magnitude is equal to a previous value, it is inherent that no adjustment is made. This leads to a non-periodically dynamic update of the delay. Thus the delay would be updated periodically dependent upon the magnitude value.

It would have been obvious to one skilled in the art at the time of invention to incorporate the teachings of Schilling of as a method of reducing the probability of error of a spread spectrum signal arriving from two or more paths (col. 1, lines 35-44).

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lawrence B Williams whose telephone number is 571-272-3037. The examiner can normally be reached on Monday-Friday (8:00-6:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ghayour Mohammad can be reached on 571-272-3021. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Lawrence B. Williams

lbw
May 16, 2008

/Lawrence B Williams/
Examiner, Art Unit 2611

/Mohammad H Ghayour/
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